

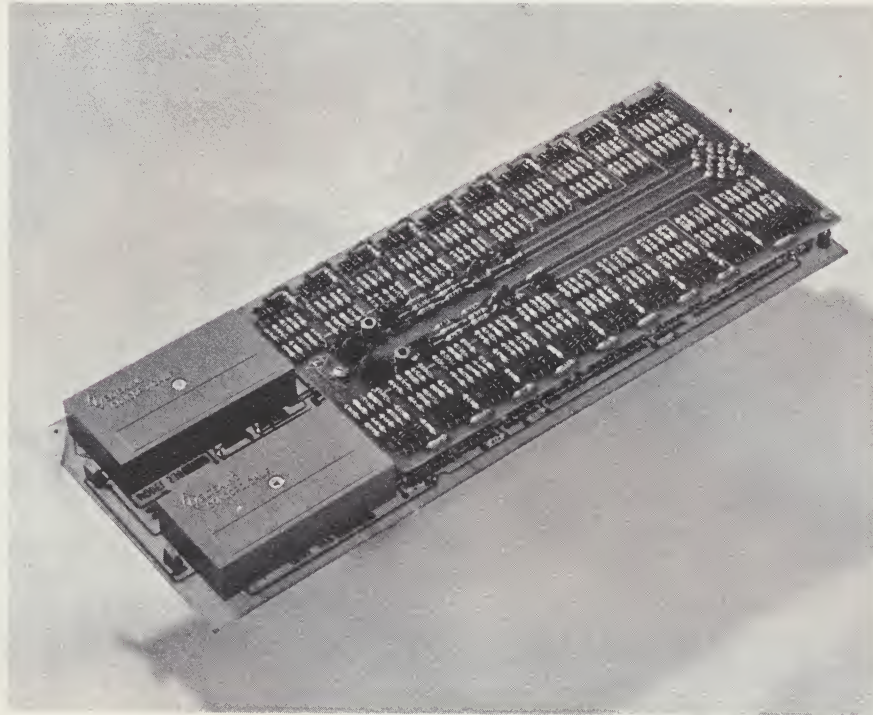
NEW PRODUCT RELEASE



ELTEX INC.

2350 WILLOW PASS ROAD • CONCORD, CALIFORNIA • PHONE 686-6660, AREA CODE 415

Specialists in amplifiers and computer elements.



Model 530 Sine-Cosine Generator

The Model 530 contains two independent and identical channels of function generation. It employs active elements to greatly reduce static and dynamic errors in approximating the functions. Normally supplied for the sine function, either channel can be converted for cosine with an external closing contact. An output amplifier and an inverter are normally associated with each channel; where a restricted range of operation is satisfactory, only the output amplifier is required.

Specifications (Apply to either channel)

Input: A voltage X in the range of $\pm 100v$ corresponding to $\pm 270^\circ$ for the sine and in the range from $-100v$ to $+66.6v$ corresponding to -270° to $+180^\circ$ for the cosine function. ($2.7^\circ/v$ scale factor).

Output: Each channel, when terminated with a $100K$ feedback amplifier, can generate either $-\sin X$ or $-\cos X$.

Maximum static error: 25 mv

Zero error: 2 mv

Output noise; less than 20 mv , p-p

Maximum dynamic error: 100mv @ 100cps

Input impedance: 30 Kohm

Temperature coefficient: $2\text{ mv}/^\circ\text{C}$

Power required: $\pm 100v$ at 15ma per channel

Note: Bi-polar inputs not required. For operation over restricted range, inverter channels not required. Sine output is $\pm 90^\circ$ for $\pm 100v$ input, and cosine output is from 0° to -90° for input range of $0v$ to $-100v$.

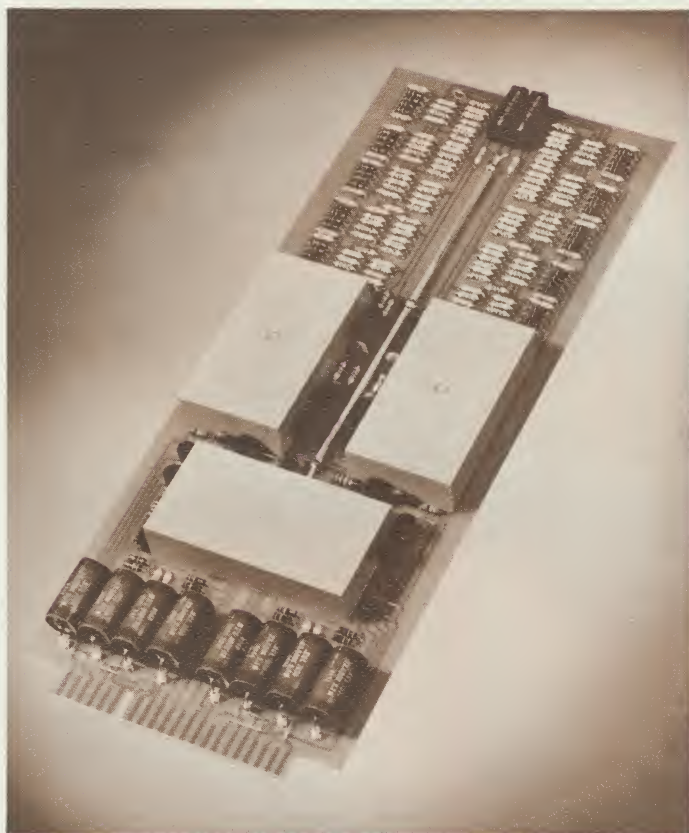
Selling Price: \$ 700 each

ELECTRONIC MULTIPLIERS

MODELS 502 & 502A



ZELTEX, INC.



- ALL SOLID STATE
- MINIMUM COMPONENT COUNT
- INVERTERS BUILT-IN
- OVERVOLTAGE INDICATION
- WIDEBAND ACCURACY

DESCRIPTION

The Zeltek 502 series are quarter-square electronic multipliers which offer high static accuracy and operational versatility. Using a new design technique, these multipliers require a minimum number of solid-state components which insures high reliability and low cost. Two versions are offered; the 502 accepts four input signals, $\pm X$ and $\pm Y$, while the 502A incorporates inverting amplifiers and only requires two input signals, $+X$ and $+Y$. □ These units effectively use an 84 line segment approximation to the square law over the range from

-100 to $+100$ volts. Each square law channel has been designed to correct output for very small input signals, so that true multiplication exists for small input signals. The square law relationship is preserved over a 104 volt range, and an overvoltage signal is available when $\frac{|X| + |Y|}{2} \geq 102$ v. The multipliers can be programmed externally (without having to alter jumpers on the plug-in card) to function as a multiplier, a divider, a pair of independent squaring networks, or for dual square root extraction.

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SPECIFICATIONS

(All specifications using Zeltez amplifiers or equivalent)

	Model 502	Model 502A
INPUT VOLTAGE	$\pm X, \pm Y$	$+X, +Y$
INPUT RANGE	$ X + Y \leq 200 \text{ v}$	$\pm 100 \text{ v}$
OUTPUT	$-XY/100$	$-XY/100$
OUTPUT RANGE*	$\pm 100 \text{ v}$	$\pm 100 \text{ v}$
MAXIMUM STATIC ERROR		
$X = 0, Y = 0$	2 mv	2 mv
$X = 0, Y = \pm 100$ or $Y = 0, X = \pm 100$	20 mv	20 mv
$X = \pm 100, Y = \pm 100$	50 mv	50 mv
DYNAMIC ERROR		
at 100 cps	100 mv peak	100 mv peak
at 1000 cps	1 volt peak	1 volt peak
FREQUENCY RESPONSE (-3 db)	40 kcs	40 kcs
OUTPUT NOISE (0 to 100 kc)	15 mv, p-p	15 mv, p-p
INPUT IMPEDANCE	50k ohm	50k ohm
TEMPERATURE COEFFICIENT	2 mv/°F	2 mv/°F
NUMBER OF GAIN ADJUSTMENTS	2	2
POWER REQUIREMENTS	$\pm 100 \text{ v @ } 15 \text{ ma}$	$\pm 100 \text{ v @ } 20 \text{ ma}$ $\pm 130 \text{ v @ } 10 \text{ ma}$
PHYSICAL SIZE	4.8" x 12.4"	4.8" x 12.4"

*Available at the output of an external amplifier. To insure a precise scale factor, the 100k ohm feedback resistors are matched and available within the multipliers.